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To
Mr. Nicholas Ponomarenko,
Primary Examiner
Technology Center 2800
United States Patent and Trademark Office
Washington, DC, 20231

Concern: Non-Final Decision for Application Number 09/830,017

Title: Method for producing electrical energy

Inventors/applicants: Dr. A. Luchinskiy, Prof. Dr. G. Werth, Prof. Dr. Y. Shifrin

Amended Title: **ELECTROGASDYNAMIC METHOD FOR GENERATION
ELECTRICAL ENERGY**

PCT/DE 99/03389

US filing date 07/27/2001

Dear Mr. Ponomarenko,

Thank you very much for your examination.

According to your requirements the following amendments were done:

AMENDMENTS :

Amendment 1):

The main amendment is a correction of the principle language translation error:

German term "**Wärmerohr**" was wrong translated as "heat tube", which word-combination has not technical meaning. And as a result the technical sense of the description was lost at the beginning. Because the term "**Wärmerohr**" (engl.: "heat pipe", rus.: "тепловая труба") has the absolutely definite and the same in all countries technical meaning, which determines the sense of description of our invention and lays in the grounds of the claims.

As a proof, that the question in point is a language error by the translation of this technical term, and therefore no new matter was introduced by this amendment (term correction), the following papers are enclosed:

- 1) Articles from one general encyclopaedia (**Enclosure 1**), and from one special technical encyclopaedia (**Enclosure 2**), where the term "**Wärmerohr**" ("heat pipe") is completely determined, and near the German term it's English translation is showed in brackets.
- 2) Copy of article from a Russian-edited translation from the US reference book with the same translation and meaning of this term (heat pipe = тепловая труба = Wärmerohr), which also proves the international uniformity of this term and it's meaning. (**Enclosure 3**).

3) Our European patent for this invention (**Enclosure 4**), which contains both German and English terms.

By making this correction the following misunderstandings by reading of the invention's description (not-amended text) should be removed:

Because the term "heat pipe" is completely determined both in general encyclopaedias and in special reference books (s. Enclosures 1-3), and this term has the definite and the same in all countries technical meaning, we have not quoted the complete explanation description of the meaning of this term in the description of our invention.

In particular such properties as **effective workingability already by low temperature differences**, and the possibility to obtain a **high velocity gas stream** were explained in our previous (not amended) description with the reference on the term "heat pipe", without a detailed explanation how a heat pipe works.

In the amended description we are inserting the reference to one US reference book with it's description (s. above-mentioned Enclosure 3).

In short we are inserting into the amended description the short principal explanation (in "Brief summary"-section) and detailed explanation (in Detailed Description"- section) of the main physical and technical principles of work of the heat pipes.

namely:

the fact that evaporation and condensation on capillary structures run very intensively in comparison with these processes on a liquid's free surfaces;

the fact that these two phasetransfer processes, which are proceed with different signs, and are explosive/implosive-like (e.g. characterized by sharp increase and decrease of the volume of the working medium) by its features, take place simultaneously and uninterruptedly in a closed space and in immediate proximity of each other. This leads to formation of a high speed gas flow from the vaporizer into the condenser. And it takes place already by low temperature difference;

the first and the main amendment is replacing of words "**heat tube**" with the term "**heat pipe**".

Amendment 2):

Claim 1 the word "**here**" (Germ. "**wobei**", s. Germ.-langu. WIPO publication and European patent) was loss by translator in the English translation. We are restoring this word, which does not important.

is replaced with the phrase: "... *the external forces performing work against the Coulomb force* ..." is replaced with the phrase "... **here** *the external forces performing work against the Coulomb force*;...)

Amendment 3):

the wording the **Claim 2** more exactly and therefore more narrow particular in comparison to the WIPO-PCT publication and to the European patent. By doing so the matter by Claim 2 matter is formally reduced in comparison to WIPO publication and

European patent, but the content of description becomes more understandable. We do not see a problem in this patented matter reducing, because the combination of all claims covered everything we need anyway.

The fact, that heat pipe in our case has a necked down section in it's transport zone, and generator's liquid working medium is entrained in this narrow, is supported both by the patent description's not-amended text (in several places) and by all of 3 Figures.

Amendment 4):

Title of invention was amended according to the requirement, named in the decision.

Other amendments due to your requirements are shown below in the table.

ABOUT THE EXISTING SOLUTIONS :

The US- 5.185.541, US-3.651.354, US- 3.638.054; US-3.612.923; US- 3.582.694; US- 3.225.225, indicated in the "Notice of References Cited" from your Decision, as well also US- 5.18 461 A, etc. from the PCT International Search Report can not be opposed to our invention, because all of them describes the different constructions of a liquid-drops electrostatic generator, which working media are charged liquid drops, and the source of energy is a mechanical energy of some kind of stream of carrier gas. (And besides it does not matter, wherefrom this stream of carrier gas takes it's mechanical energy).

None of these inventions give a technical solution for the problems how to create the high speed stream of this carrier gas, where the energy for this gas flow can be taken from, and how to convert the sun energy or the heat energy already by low temperature differences into this high speed gas flow energy.

And in our invention we are using the Heat Pipe principle for the creation of a high speed carrier gas for the gasdynamic electrostatic generator, and we are executing the "...charges separation, displacement and there guiding onto electrodes, etc...", that is the electrostatic operation, by the energy of this gas stream. And it is the matter of our invention.

In other words the electrostatic generator's liquid 7 is supplied into the interior of a heat pipe concretely into it's transport zone, charge separation and the further charge displacement, as well there guiding onto electrodes are carried out by the gas stream of this heat pipe, which stream flows through this transport zone with a big speed.)

Our solution gives the possibility to use effectively the sun energy as an energy source for the liquid-drops electrostatic generators. And it also gives the possibility to use the heat energy as an energy source for the liquid-drops electrostatic generators already by low temperature differences. Because heat pipe gives the possibility to convert these above mentioned kinds of energies into the energy of it's own **high speed gas stream** very effective (no other known methods can be used so effective for the creating of high speed gas stream by the energy from these sources); and therefore the further operation step: drive of electrostatic generator with this gas stream is very effective.

It is necessary to note, that nobody from the authors of the above-mentioned generators, had not given a solution, how to create a high velocity gas stream for there generators by using of

sun energy or of heat energy already by low temperature differences. Authors of the US 3 518 461 A (s. PCT International Search Report) in there later solutions (4 433 248 A, US 4 206 496 A) had to use an energy of wind for this purpose. (By the way, they are citing US 3.225.225 in there invention, but nevertheless had to use wind. Because US 3.225.225 (electrostatic generator with heat source) do not give solution for low temperature differences and therefore for renewable heat energy sources).

Respectfully,



Alexander Luchinskiy

Next sheets : 1) Table of amendments; 2) Not-amended details.

Content of amendment

CLAIMS : (detailed s. 111 in the covering letter)

FIG. 1 :

Representation in the gravitational field for the case shown is showed in the covering letter. Requirement from page 1 of the Not-final version

* fig.

DESCRIPTION :

The format of the description was changed. The description was written in the **US patent** format instead of German (German format)

Proof that no new matter was introduced by this amendment

1) The translation's language errors were corrected (the most important main amendment);
2) Claim 2 was reworded more exact (explanation why no new matter was therewith inserted, is given above in the covering letter).

In the Fig. 1 was assumed, that the vertical direction in the picture is vertical in reality, i.e. the same with the direction of the gravitational field. Except the surface of liquid 7 is horizontal in the picture, and it proves, that no any other directions could not be assumed as a direction of gravitational field.

The original description of the invention was written in German format, exactly due to the German patent office requirements. Both WIPO and European patent office accept this format, therefore WIPO publication and the European patent were published in German format too. The amended text is rewritten in USPTO format, and more exact, according to requirements, which were explained in the expertise decision.

The amended description either explains more detailed the already known matter from cited sources, or presents the already described before matter in the US patent format. Therefore no new matter was inserted

NOT-AMENDED DETAILS:

1. **Capillary structure in the drawings.**

In fact the capillary structure of the heat pipe was showed in the drawings as a shaded cross-section 5.

In the way, the fact, that the loop 10 also is filled with a capillary structure (for the generator and transport in cases Fig. 2 and Fig 3), was indicated in the not-amended description too. Thus, all shaded cross-sections in the drawings showed capillary structures, but not walls, and this was supported with the text before it's amending).

2. **Phrase " or the like" in the claim 1.**

This phrase never existed neither in German-language's PCT publication and German priority document, nor in English- translated claims in the European patent publication. Obviously the error in point is a translation's misunderstanding in the US application.

3. **Source for generator's liquid.**

There is no source for generator's liquid 7, because this liquid is contained and circulated in loop 10.

In our method realisation's examples this liquid is entrained into the gas flow as in a usual atomizer (sprayer), that is due to Bernoulli effect. We think it could be wrong to explain it in our description of invention more detailed, because such method of liquid entraining is widely known; and it is also used very widely (as f.e. for perfume sprayers, paint sprayers, etc.). Therefore everything is obvious from the drawings. And on the other hand it is unrelated to the claimed matter of our invention, because the way for generator liquid entraining is not important for this claimed matter.

In our description we had not a purpose to develop the new constructions of electrostatic generators unrelated to it's energy source. We have described several simplest general examples of such kind of generators to illustrate how works our method. In one of them electrical charges are created by friction of generator's liquid 7 and solid working medium 6; in the other of them electrical charges are created by the liquid 7 striking the medium 6. But in all of them the generator's liquid 7 is supplied into the interior of a heat pipe, concretely into it's transport zone, charge separation and the further charge displacement, as well there guiding onto electrodes are carried out by the gas stream of this heat pipe, which stream flows through this transport zone with a big speed.